

NOTES ON *RHODOGNAPHALOPSIS* AND *BOMBACOPSIS* (BOMBACACEAE) IN THE GUAYANAS

The genus *Rhodognaphalopsis* was established by A. Robyns in his revision of *Bombax* in the broad sense (1963). In his generic key, he separated *Rhodognaphalopsis* and *Rhodognaphalon* from *Bombacopsis*, *Eriotheca*, and *Pachira* using only pollen characters: "Pollina colpata vel colporata; sexinium reticulatum ad interdum fragmenturatum" for characterizing the last three genera and "Pollina porata vel cop(or)ata [*sic*]; sexinium structura uniformi, tegellatum ad punctatitegillatum tegilloque processibus spinulatis vel baculatis praedito" for the first two. By comparing Robyns's generic descriptions, one can also find that *Rhodognaphalopsis* is often lepidote on several organs while *Bombacopsis* is not; apparently it was overlooked that at least *Bombacopsis quinata* (Jacq.) Dugand (= *Pochota quinata* (Jacq.) W. D. Stevens) has prominently lepidote flowers.

The palynological differences between *Rhodognaphalopsis* and *Bombacopsis* are not impressive (e.g., see fig. 25 in Robyns, 1967), but perhaps more importantly, *Bombacopsis* is palynologically diverse (see Nilsson & Robyns, 1986), enough so as to accommodate *Rhodognaphalopsis* easily. Since this questionable palynological difference is not correlated with any gross morphological characters, it appears more appropriate to merge the two genera. It should be noted, however, that while *Rhodognaphalopsis* is relatively homogeneous, *Bombacopsis* is not. It could well be that some species of *Bombacopsis*, as circumscribed by Robyns, will eventually be found to be better placed in *Pachira*. *Rhodognaphalopsis* most resembles the type element of *Bombacopsis* and

there is little danger of *Rhodognaphalopsis* falling into the synonymy of *Pachira*. It can also be noted that Hutchinson (1967) judged the palynological difference to be of little importance and considered *Rhodognaphalopsis*, as well as the African genus *Rhodognaphalon*, to be indistinguishable from *Bombacopsis*.

Pittier erected the genus *Bombacopsis* for two Central American species that he considered intermediate between *Pachira* and *Bombax*. These, *Bombacopsis sessilis* (Benth.) Pittier and *B. fendleri* (Seem.) Pittier (= *Bombacopsis quinata* (Jacq.) Dugand), have the seeds embedded in wool, characteristic of the genus *Bombax*, as contrasted with *Pachira*, in which the seeds are embedded in the fleshy dissepiments of the capsule. They further share with *Bombax* the manner in which staminal fascicles divide at once into single filaments. Pittier distinguished *Bombacopsis* from *Bombax* by the fewer stamens and more slender flowers of the former. Later, Robyns (1963) also recognized the genus *Bombacopsis*. He distinguished it from *Bombax* by its persistent or even accrescent calyx, while from *Pachira* it was separated by having abundant, wooly, elongated investiture of the seed; by possession of smaller flowers; by differences in the pollen and cotyledons; and usually by smaller and more numerous seeds. Many of the species were transferred from *Bombax*, while some others had previously been recognized in *Pachira*.

Recently, it has been reiterated that *Pochota* Ramirez Goyena has nomenclatural priority over *Bombacopsis* (Stevens, 1987). Since then, *Bombacopsis* has been proposed for conservation (Nicolson & Robyns, 1987).

Given that we cannot accept *Rhodognaphalopsis* and *Bombacopsis* as distinct genera and that several of these species will be treated in the upcoming *Flora of the Venezuelan Guayana*, we are left with the dilemma of how to treat them. One could make the new combinations of *Bombacopsis* in anticipation of conservation, but it must be taken into consideration that the two previous proposals to conserve *Bombacopsis* against *Pochota* have been rejected and that there is no assurance that the current proposal will be successful, a process which in any case will require years to complete. If, on the other hand, the more strictly correct approach of making the combinations in *Pochota* is followed, the distinct possibility of the names being overturned will remain. Although the latter choice will require the larger number of transfers, to account for *Bombacopsis* as well as for *Rhodognaphalopsis*, we have reluctantly concluded that it is preferable. Accordingly, the following new combinations are proposed:

Pochota amazonica (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis amazonica* Robyns, Bull. Jard. Bot. État 33: 186. 1963.

Pochota coriacea (Martius & Zucc.) Steyerem. & W. D. Stevens, comb. nov. *Bombax coriaceum* Martius & Zucc. in Martius, Nov. Gen. Sp. Pl. 1: 93. 1826. *Rhodognaphalopsis coriacea* (Martius & Zucc.) Robyns, Bull. Jard. Bot. État 33: 289. 1963.

Pochota coriacea subsp. ***orinocensis*** (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Rhodognaphalopsis coriacea* subsp. *orinocensis* Robyns, Mem. New York Bot. Gard. 17: 197. 1967.

Pochota cowanii (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis cowanii* Robyns, Mem. New York Bot. Gard. 17: 190. 1967.

Pochota flaviflora (Pulle) Steyerem. & W. D. Stevens, comb. nov. *Bombax flavi-*

florum Pulle, Recueil Trav. Bot. Néerl. 9: 150. 1912. *Rhodognaphalopsis flaviflora* (Pulle) Robyns, Bull. Jard. Bot. État 33: 285. 1963.

Pochota gracilis (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Rhodognaphalopsis gracilis* Robyns, Mem. New York Bot. Gard. 17: 199. 1967.

Pochota humilis (Spruce ex Decne.) Steyerem. & W. D. Stevens, comb. nov. *Pachira humilis* Spruce ex Decne., Fl. Serres Jard. Eur. 23: 52. 1880. *Rhodognaphalopsis humilis* (Spruce ex Decne.) Robyns, Bull. Jard. Bot. État 33: 294. 1963.

Pochota maguirei (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Rhodognaphalopsis maguirei* Robyns, Mem. New York Bot. Gard. 17: 200. 1967.

Pochota minor (Sims) Steyerem. & W. D. Stevens, comb. nov. *Carolinea minor* Sims, Bot. Mag. 34: pl. 1412. 1811. *Pachira minor* (Sims) Hemsley, Biol. Cent.-Amer., Bot. 1: 124. 1879. *Bombax minus* (Sims) Ducke, Arch. Jard. Bot. Rio de Janeiro 6: 65. 1933. *Rhodognaphalopsis minor* (Sims) Robyns, Bull. Jard. Bot. État 33: 278. 1963.

Bombax jenmani [i] Oliver, Hooker's Icon. Pl. 18: pl. 1720. 1887. *Pachira jenmani* (Oliver) A. Terracc., Contr. Biol. Veg. 2: 167. 1898. *Bombacopsis jenmani* (Oliver) Lasser in H. Pittier et al., Catalogo de la Flora Venezolana 2: 133. 1947.

Pachira cardonae Cuatrec., Trop. Woods 101: 15. 1955.

Pochota nitida (Kunth) Steyerem. & W. D. Stevens, comb. nov. *Pachira nitida* Kunth, Nov. Gen. Sp. 5: 302. 1821. *Rhodognaphalopsis nitida* (Kunth) Robyns, Bull. Jard. Bot. État 33: 282. 1963.

Bombax poissonianum Schumann in Martius, Fl. Bras. 12(3): 225. 1886.

Pachira obtusa Spruce ex Schumann in Martius, Fl. Bras. 12(3): 232. 1886. *Bombax obtusum* (Spruce ex Schumann) Bakh., Bull. Jard. Bot. Buitenzorg, sér. 3, 6: 171. 1924.

Pochota obovata (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis*

obovata Robyns, Mem. New York Bot. Gard. 17: 192. 1967.

Pochota orinocensis (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis orinocensis* Robyns, Mem. New York Bot. Gard. 17: 193. 1967.

Pochota pseudamazonica (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis pseudamazonica* Robyns, Mem. New York Bot. Gard. 17: 193. 1967.

Pochota pseudofaroensis (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Rhodognaphalopsis pseudofaroensis* Robyns, Mem. New York Bot. Gard. 17: 201. 1967.

Pochota sordida (R. Schultes) Steyerem. & W. D. Stevens, comb. nov. *Bombax sordidum* R. Schultes, Bot. Mus. Leaf. 16: 75. 1953. *Rhodognaphalopsis coriacea* var. *sordida* (R. Schultes) Robyns, Bull. Jard. Bot. État 33: 292. 1963.

Rhodognaphalopsis discolor Robyns, Mem. New York Bot. Gard. 17: 198. 1967.

Pochota trinitensis (Urban) Steyerem. & W. D. Stevens, comb. nov. *Pachira trinitensis* Urban, Notizbl. Bot. Gart. Berlin-

Dahlem 8: 28. 1921. *Bombacopsis trinitensis* (Urban) Robyns, Bull. Jard. Bot. État 33: 191. 1963.

Bombacopsis mucronulata Pittier, Arb. Arbust. Venez. 2/3: 34. 1923.

Bombacopsis pachiroides Pittier, Arb. Arbust. Venez. 2/3: 35. 1923.

Pochota wurdackii (Robyns) Steyerem. & W. D. Stevens, comb. nov. *Bombacopsis wurdackii* Robyns, Mem. New York Bot. Gard. 17: 194. 1967.

LITERATURE CITED

HUTCHINSON, J. 1967. The Genera of Flowering Plants, Volume 2. Oxford.

NICOLSON, D. H. & A. ROBYNS. 1987. (883) Proposal to conserve 5024a *Bombacopsis* against *Pochota* (Bombacaceae). Taxon 36: 655-656.

NILSSON, S. & A. ROBYNS. 1986. Bombacaceae. In: World Pollen and Spore Flora 14. Stockholm.

ROBYNS, A. 1963. Essai de monographie du genre *Bombax* s.l. (Bombacaceae). Bull. Jard. Bot. État. 33: 1-315.

———. 1967. Bombacaceae. In: B. Maguire et al., The Botany of the Guayana Highland. VII. Mem. New York Bot. Gard. 17: 190-201.

STEVENS, W. D. 1987. On the identity and recognition of the genus *Pochota* Ramirez Goyena (Bombacaceae). Taxon 36: 458-464.

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